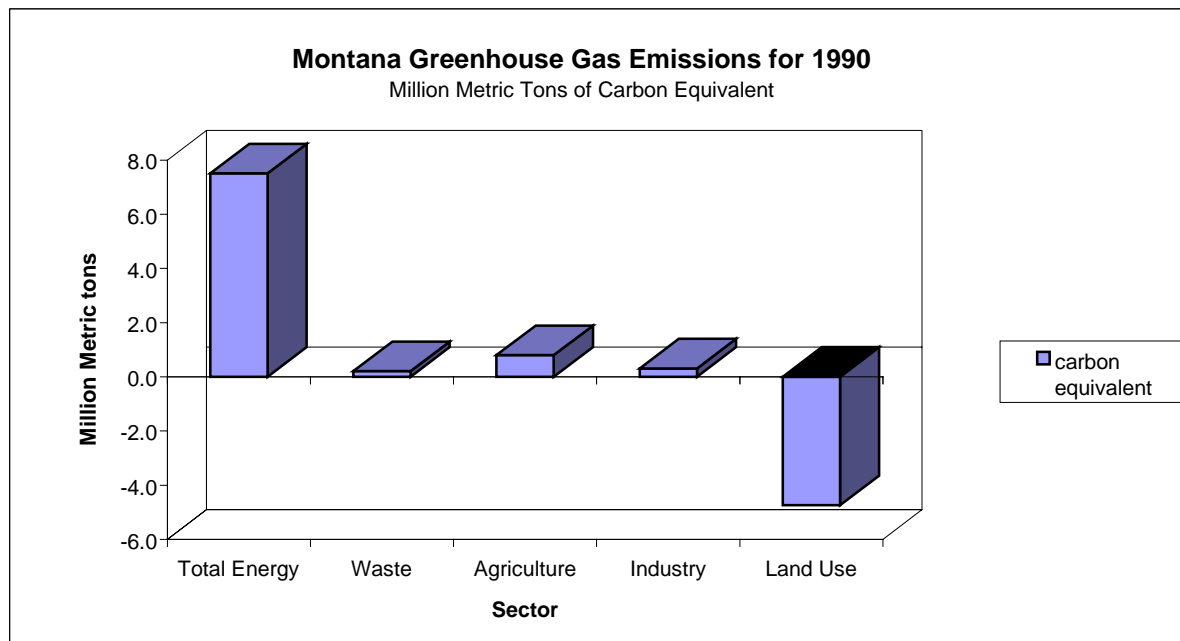


MONTANA GREENHOUSE GAS EMISSIONS AND SINKS INVENTORY: SUMMARY



The report “*Montana Greenhouse Gas Emissions Inventory: Estimate for 1990*” provides a detailed inventory of greenhouse gas emissions and sinks for Montana in 1990. Emissions were estimated using methods from EPA’s 1995 guidance document ***State Workbook: Methodologies for Estimating Greenhouse Gas Emissions***. In 1990, Montana emitted 4.1 million metric tons of carbon equivalent (MMTCE). Montana estimated emissions of less than 0.1 MMTCE and avoided emissions of 3.2 MMTCE from biomass fuels and from other sources not included in the workbook. Emissions and reductions from these sources are not included in the reported total or the table below.¹

The principal greenhouse gases were carbon dioxide, comprising 10.2 million metric tons (2.8 MMTCE), and methane, with 0.2 million metric tons (0.9 MMTCE). Other emissions included 2,045 metric tons of nitrous oxide (0.2 MMTCE), and 112 metric tons of perfluorocarbons (0.2 MMTCE).

¹ Note that the state of the art emission inventory method has advanced since Montana completed its inventory; therefore, we have made the following adjustments to Montana’s emission estimates. First, we excluded emission estimates for sources not covered by the most recent inventory guidance (<http://www.epa.gov/ttnchie1/eiip/techrep.htm#green>). These emissions include carbon dioxide from paper pulp lime kilns and exported fossil fuels, and avoided carbon dioxide emissions due to fire suppression efforts. Second, we used updated values for global warming potentials.

Montana Greenhouse Gas Emissions for 1990

| BY SECTOR | CO2 (MMTCE) | Methane (MMTCE) | Nitrous Oxide (MMTCE) | HFCs, PFCs, and SF6 (MMTCE) | Total GHG Emissions (MMTCE) |
|-------------------------------|----------------|--------------------|--------------------------|-----------------------------------|-----------------------------------|
| Energy - Residential | 0.3 | * | * | * | 0.3 |
| Energy - Commercial | 0.2 | * | * | * | 0.2 |
| Energy - Industrial | 1.3 | * | * | * | 1.3 |
| Energy - Transport | 1.6 | * | * | * | 1.6 |
| Energy - Utility | 1.7 | * | * | * | 1.7 |
| Energy - Exported Electricity | 2.2 | * | * | * | 2.2 |
| Energy - Other | * | 0.1 | * | * | 0.1 |
| Total Energy | 7.4 | 0.1 | * | * | 7.5 |
| Waste | * | 0.2 | * | * | 0.2 |
| Agriculture | * | 0.6 | 0.2 | * | 0.8 |
| Industry | 0.1 | * | * | 0.2 | 0.3 |
| Land Use | -4.7 | * | * | * | -4.7 |
| Total | 2.8 | 0.9 | 0.2 | 0.2 | 4.1 |

All emissions are reported in million metric tons of carbon equivalent (MMTCE).

An asterisk (*) indicates that emissions of the gas from this sector were zero, insignificant, or not reported.

Emissions due to coal mining and extraction of natural gas and oil are included in the energy – other figures, and emissions from biofuel combustion are excluded.

The major source of carbon dioxide emissions was fossil fuel combustion (99%), with minor emissions from cement manufacture and lime manufacture. Carbon dioxide sinks (i.e., an increase in forest carbon storage) offset about 54% of the total carbon dioxide emissions. Contributors to methane emissions were domesticated animals (68%), landfills (22%), natural gas and oil production (7%), coal mining (3%), and wastewater (<1%). Nitrous oxide emissions were entirely attributable to fertilizer use. Emissions of perfluorocarbons were entirely attributable to aluminum production.

Montana emissions in 1990 were 5.1 MTCE per capita, compared to 1990 U.S. emissions of 6.4 MTCE per capita.